

Abstract

A system for controlling fluid flow through  $i$  lines, wherein the  $i$  lines are connectable through tubing to  $i$  zones, respectively, and wherein  $i = 1, 2, \dots, N$ . The system includes at least one valve and a pressure transducer in each of the  $i$  lines, a control device for controlling the valves, and a zone pressure estimator. The zone pressure estimator is connected to the pressure transducers and is programmed to calculate an estimated pressure in each the  $i$  zones and provide the estimated pressures to the control device.